

**WHAT IS CLAIMED IS:**

1. A method for recording an image and information pertaining to such image on a output medium, comprising the steps of:
  - a) providing a medium including an oriented polymer;
  - b) recording an image on the output medium; and
  - c) producing information pertaining to such image and recording such information pertaining to the image on the output medium.
2. The method of claim 1 wherein the oriented polymer includes a polypropylene or polyester.
3. The method of claim 2 wherein the polypropylene or polyester is biaxially oriented.
4. The method of claim 1 wherein the medium includes at least two layers and each include either biaxially oriented polypropylene or biaxially oriented polyester.
5. The method of claim 1 wherein the medium includes a hindered amine light stabilizer.
6. The method of claim 5 wherein each layer of the medium includes a hindered amine light stabilizer.
7. The method of claim 1 wherein the oriented polymer is formed so as to provide voids.
8. A method for recording an extended color gamut digital image on a hard-copy output medium having a limited color gamut comprising the steps of:

- a) providing a medium including biaxially oriented polypropylene;
- b) adjusting the extended color gamut digital image to be compatible with the recording properties of the output medium; and
- c) recording the adjusted extended color gamut digital image on the output medium; and
- d) producing information pertaining to such image and recording such information pertaining to the image on the output medium.

9. A method for recording an extended color gamut digital image on an output medium having a limited color gamut, comprising the steps of:

- a) providing a medium including an oriented polymer;
- b) adjusting the color values of the extended color gamut digital image to fit within the limited color gamut of the output medium to form a limited color gamut digital image;
- c) producing a limited color gamut output print from the limited color gamut digital image on the hard-copy output medium;
- d) determining a residual image representing a difference between the extended color gamut digital image and the limited color gamut digital image; and
- e) recording the residual image on the output medium using a digital encoding means such that the residual image and the limited color gamut output print are adapted to be used to form a reconstructed extended color gamut digital image, whereby an improved image is provided on the output medium.

10. The method of claim 8 wherein the oriented polymer includes a polypropylene or polyester.

11. The method of claim 9 wherein the polypropylene or polyester is biaxially oriented.

12. The method of claim 8 wherein the medium includes at least two layers and each include either biaxially oriented polypropylene or biaxially oriented polyester.

13. The method of claim 12 wherein the medium includes a hindered amine light stabilizer.

14. The method of claim 13 wherein each layer of the medium includes a hindered amine light stabilizer.

15. The method of claim 9 wherein the digital encoding means comprises a magnetic recording element on the hard-copy output medium.

16. The method of claim 9 wherein the digital encoding means comprises an invisible encoding means using an infrared absorbing ink, pigment or dye.

17. The method of claim 16 wherein the infrared absorbing ink, pigment or dye is incorporated into the output medium.

18. The method of claim 9 wherein the digital encoding means comprises an invisible encoding means using an ultraviolet absorbing ink, pigment or dye.

19. The method of claim 9 wherein the ultraviolet absorbing ink, pigment or dye is incorporated into the output medium.

20. The method of claim 9 wherein the ultraviolet absorbing ink, pigment or dye is applied onto the output medium.

21. The method of claim 9 wherein the digital encoding means comprises an invisible encoding means using an infrared fluorescing ink, pigment or dye.

22. The method of claim 21 wherein the infrared fluorescing ink, pigment or dye is incorporated into the output medium.

23. The method of claim 21 wherein the digital encoding means comprises an invisible encoding means using an ultraviolet fluorescing ink, pigment or dye.

24. The method of claim 21 wherein the ultraviolet fluorescing ink, pigment or dye is incorporated into the output medium.

25. The method of claim 21 wherein the ultraviolet fluorescing ink, pigment or dye is applied onto the output medium.

26. The method of claim 21 wherein the digital encoding means comprises a visible modulation code on the rear surface of the hard-copy output medium.

27. The method of claim 21 wherein the digital encoding means comprises a digital data embedding technique.

28. The method of claim 21 wherein the digital encoding means includes a passive transponder.

29. The method of claim 9 wherein the limited color gamut digital image is determined by modifying color values that are outside the limited color gamut so that they are mapped to color values within the limited color gamut.

30. The method of claim 9 wherein the extended color gamut digital image has a larger range of chroma values than the limited color gamut digital image.

31. The method of claim 9 wherein the extended color gamut digital image has a larger luminance dynamic range than the limited color gamut digital image.

32. The method of claim 31 wherein the step of adjusting the color values of the extended color gamut digital image to determine the limited color gamut digital image includes applying a tone scale function to reduce the luminance dynamic range of the image.

33. The method of claim 9 wherein the extended color gamut digital image is a representation of the colors in an original scene.

34. The method of claim 33 wherein the limited color gamut digital image is determined by rendering the colors of the original scene to produce rendered color values that are desirable for the output medium.

35. The method of claim 9 wherein a data compression technique is applied to the residual image before it is stored so that it can be represented by a smaller amount of digital data.

36. The method of claim 9 further including the step of using the residual image together with the limited color gamut output print to form a reconstructed extended color gamut digital image.

37. The method of claim 9 wherein the extended color gamut digital image originates from a scan of a photographic negative.

38. The method of claim 9 wherein the extended color gamut digital image originates from a scan of a photographic transparency.

39. The method of claim 9 wherein the extended color gamut digital image originates from a scan of a photographic print.

40. The method of claim 9 wherein the extended color gamut digital image originates from a digital camera.

41. The method of claim 9 wherein the residual image is determined by computing a difference between the extended color gamut digital image represented in an extended reference color space and the limited color gamut digital image represented in a reference color space.

42. The method of claim 9 further including the step of using the residual image together with the limited color gamut output print to form a digital image appropriate for display on an output device having a color gamut different than the limited color gamut of the original output medium.

43. The method of claim 42 wherein the limited color gamut output print is scanned using a digital print scanning means to determine a limited color gamut digital image

44. The method of claim 42 including the step of recovering the digitally encoded residual image from output print.

45. A method for representing an extended color gamut digital image on an output medium having a limited color gamut, comprising the steps of:

- a) providing a medium including an oriented polymer;
- b) adjusting the color values of the extended color gamut digital image to fit within the limited color gamut of the output medium to form a limited color gamut digital image;

- e) storing the residual image using a digital storage means;

f) encoding information about the location of the stored data on the output print using a digital encoding means.

46. The method of claim 45 wherein the residual image is

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48. The method of claim 45 wherein the residual image is

49. A method for representing and manipulating an extended

- a) providing a medium including an oriented polymer;

b) adjusting the color values of the extended color gamut

c) producing a limited color gamut output print from the

- d) determining a residual image representing a difference between the extended color gamut digital image and the limited color gamut digital image;
- e) encoding the residual image on the output print using a digital encoding means such that the residual image and the limited color gamut output print are adapted to be used to form a reconstructed extended color gamut digital image;
- f) specifying a desirable modification to the image; and
- g) using the residual image together with the limited color gamut output print and the specified desirable modification to the image to produce a modified digital image.

50. The method of claim 49 wherein the desirable modification is interactively user specified.

51. The method of claim 49 wherein the desirable modification is determined by applying an automatic algorithm to the digital image.

52. A computer storage product having at least one computer storage medium having instructions stored therein causing one or more computers to perform the method of claim 45.

53. A computer storage product having at least one computer storage medium having instructions stored therein causing one or more computers to perform the method of claim 34.

54. A computer storage product having at least one computer storage medium having instructions stored therein causing one or more computers to perform the method of claim 49.